AMENDMENTS TO THE SPECIFICATION

Please amend the Heading caption on page 1 between paragraphs [0001] and [0002] of the printed publication as follows:

BACKGROUND OF THE ~~MENTION~~ INVENTION

Please amend the Heading caption on page 1, between paragraphs [0006] and [0007] of the printed publication as follows:

SUMMARY OF ~~MENTION~~ INVENTION

Please amend the paragraph starting on page 7, line 8 as follows:

~~The or each signal~~ Each processing unit 10 measures data from the sensors and updates data stored in a measurement database 44 on the central server on a regular basis by monitoring inputs on the sensors to obtain measured sensor values, as illustrated in FIG. 6. Measurements are taken periodically (step 60). Fault specific reduced data is calculated from the measurements (step 62) for each of the possible faults. The reduced data is then compared (step 64) with data stored in measurements database 44, and if there is a significant change the data in database 44 is updated (step 66). Otherwise, the new reduced data is discarded. In this way, vast amounts of identical data are not stored in the measurements database 44, thereby keeping measurements database 44 manageable.

Please amend the paragraph on page 8, starting at line 8 as follows:

FIG. 3 also illustrates the storage used at various points of the method. Reduced datasets obtained from measurements are stored in the database 44. A further database 46 stores the configuration of the equipment, and a yet further database ~~store~~ 48 stores a fault library, including

the code for each possible fault. All these may be stored in memory 20 of the server 8 or elsewhere as convenient.

Please amend the paragraph on page 9, starting at line 7 as follows:

In step 30, it is determined whether to take any action[[,]]. If the total fault symptom strength value is below a predetermined value, for example in the range 0.3 to 0.4, no further action is taken with regard to that possible fault, and the processing for the fault ends (step 32). This allows small, probably spurious fault values to be ignored.

Please amend the paragraph on page 12, starting at line 9 as follows:

The system may typically be installed and operated on a plant ~~in~~ according to the following procedure: Initially, the critical machines 16 and their constituent components 14 to be kept under surveillance are selected. Subsequently, a plurality of transducers or sensors 12 are mounted on the components 14, for instance accelerometers and proximity probes (for absolute and relative vibration measurements respectively), tacho probes (for measuring rotational speed), thermocouples (for measuring temperatures) flow sensors (for measuring liquid flows), gap probes (for measuring relative distance), etc. These transducers 12 are connected to one or several signal processing units 10 (SPUs), capable of quantisation, processing and caching the information from the individual transducers and eventually provide data communication to the central system server via standard networks. A typical plant, such as an electric power plant or a cement manufacturing plant may have several hundred transducers 12.

Please amend the paragraph on page 12, starting at line 24 as follows:

The principles of configuration and execution of auto diagnosis will now be illustrated for a typical machine component; a rotor. In the following, one practical example of configuration and operation of the Fault Diagnostic System will be explained. The example concerns a rotor supported in journal bearing. The system's Machine Fault Library includes three general classes of

rotors characterised by mechanical configuration and applicable instrumentation; one of these, the rotor with journal bearings, is selected.

Please amend the paragraph on page 12, starting at line 31 as follows:

FIG. 1 shows a rotor 14 as part of a generic machine supported by two journal bearings 80. At each bearing 80, two displacement ~~probes82~~ probes 82 and one accelerometer 84 are mounted. The signals from the displacement probes 82 and the accelerometer 84 are fed to a signal processing unit 10 for calculating the particular signatures, that subsequently are sent ~~send~~ to the central server 8 and saved in the database 44.

Please amend the paragraph on page 13, starting t line 5 as follows:

In the example, consider the case of one of these faults "unbalance". Four (4) signatures per 6 sensors (~~totally~~ totaling 24 signatures) are used to determine five partial symptoms, here distortion, local phase, roundness, phase trend and ω^2-law. These partial symptoms are combined in a fuzzy logic sense and scaled by the severity of the vibration level to provide the current Total Symptom Strength for the fault: unbalance.

Please replace the Abstract with the following rewritten paragraph:

The invention relates to an automatic fault diagnostic procedure for machines, such as steam, gas and hydro-turbines, generators, pumps, electrical motors, ~~etc.~~ etc. For each of a plurality of components, for each of a number of possible faults, a total fault symptom strength value is calculated from measured data. If the value is above a predetermined value, the fault symptom strength is plotted and fitted to a trend line to determine an estimate of when the fault symptom strength will exceed a predetermined value. Output messages are then selected based on the fit.